

Exhibit 10

Expert Report of Paul Oyer
(October 27, 2017) (excerpted)

**IN THE UNITED STATES DISTRICT COURT FOR THE
DISTRICT OF NEVADA**

Cung Le, et al. v. Zuffa, LLC

EXPERT REPORT OF PAUL OYER

October 27, 2017

CONFIDENTIAL UNDER PROTECTIVE ORDER

I. Qualifications

1. I am the Fred H. Merrill Professor of Economics at Stanford University's Graduate School of Business (GSB) in Stanford, California. I have been on the Stanford faculty for seventeen years. I am a Research Associate at the National Bureau of Economic Research, a position to which I was elected by my peers.¹ I am the Editor-in-Chief of *The Journal of Labor Economics*, the leading scholarly journal in the area of labor economics.

2. Prior to working at Stanford, I was a member of the faculty of the Kellogg School of Management at Northwestern University in Evanston, Illinois. I hold a PhD and an MA in Economics from Princeton University, an MBA from Yale University, and a BA in Mathematics and Computer Science from Middlebury College.

3. My full academic Curriculum Vitae is attached as Exhibit A.

4. I am an expert in labor economics and often do research that addresses issues in both labor economics and financial economics. I have been engaged in academic research in these areas for over twenty-five years. My research focus and expertise includes the labor market for highly talented workers with scarce and valuable skills.

II. Assignment

5. I have been asked by counsel for Zuffa, LLC to (1) explain the common and economically-accepted methods of evaluating compensation particularly as it relates to allegedly monopsonized markets, and (2) assess whether Dr. Hal Singer and Professor Andrew Zimbalist's use of fighter pay as a percentage of revenue is consistent with accepted labor economics and supportive of their conclusions.

6. The hourly rate for my work on this engagement is \$950, which is my usual rate for consulting.

¹ The NBER describes itself as follows: "The NBER is the nation's leading nonprofit economic research organization. Twenty-seven Nobel Prize winners in Economics and thirteen past chairs of the President's Council of Economic Advisers have held NBER affiliations. The more than 1,400 professors of economics and business now teaching at colleges and universities in North America who are NBER researchers are the leading scholars in their fields." <http://www.nber.org/info.html>, accessed October 17, 2017.

CONFIDENTIAL UNDER PROTECTIVE ORDER

III. Background

7. I have reviewed the expert reports submitted by Dr. Hal Singer and Professor Andrew Zimbalist in this case and the transcripts of their deposition testimony.

8. In particular, I focused on the portions of their reports or their deposition testimony that related to what I will describe as “labor share” or the percentage of a firm’s total revenues paid out as workers’ compensation.

9. Both Dr. Singer and Professor Zimbalist use labor share as the basis for their analyses. In his expert report in this matter, Dr. Singer estimates damages to MMA athletes attributable to the alleged anticompetitive behavior of Zuffa. The critical analysis underlying all his damage estimates are the regressions reported in Table 6 of his report. Dr. Singer explains that, “The dependent variable in my regression model (‘Fighter Share’) is equal to the share of Zuffa’s event-specific revenue (‘Event Revenue’) paid to a given Fighter that participated in a given event at a given point in time. Zuffa’s Event Revenues include revenues from ticket sales, PPV and broadcasting fees, and other event-specific revenue streams.”² Dr. Singer refers to this dependent variable as “fighter share” throughout his report. In Dr. Singer’s deposition, workers’ share of total firm revenue is referred to more generally as “labor share” and “wage share” so as to include contexts beyond MMA.

10. Professor Zimbalist provides an expert report in which all of his estimates of damages are based on the share of revenue earned by UFC fighters relative to athletes in other sports.

11. I evaluated the ways in which Dr. Singer and Professor Zimbalist used labor share to see if it is consistent with industry-accepted practices in labor economics. I also assessed whether it was supportive of their conclusions regarding impact and damages.

IV. Summary of Opinion

12. Labor share is not accepted in the economics community as the proper basis to evaluate compensation and it is not used in benchmarking competitive markets. Economists doing empirical analysis of earnings typically look at the *level* of pay (and, specifically, the natural logarithm of earnings) because it is a better proxy for the value the worker adds. Labor share is driven by overall firm revenues which includes many factors beyond the control of (and related to the value of) the worker.

13. Dr. Singer’s empirical analysis and his application of concepts in labor economics are fundamentally flawed. Dr. Singer did not use or even mention economic ideas and empirical methods that are typically used to study the relationship between a firm’s “monopsony” power and employee compensation. As a result, his estimates of damages are unreliable and provide no useful information about whether or not and to what degree Zuffa caused any financial damages to UFC athletes. When reanalyzing the data used by Dr. Singer in a way that is consistent with academic labor economics

² Expert Report of Hal J. Singer, PH.D (“Singer Report”) at 118.

CONFIDENTIAL UNDER PROTECTIVE ORDER

studies, the empirical results provide no evidence that consolidation of the MMA market by UFC has lowered the compensation of MMA fighters.

14. Professor Zimbalist's expert report also focuses on a measure of employee compensation that is not recognized as an appropriate metric of whether earnings are in line with the market. He also compares MMA compensation to other sports that are fundamentally different, in terms of how athletes should be compensated, than MMA while ignoring other sports that might be more appropriate for comparison.

V. Dr. Singer's Use of Labor Share is Inconsistent with Economic Principles and Empirical Studies in Labor Economics

A. Labor Share is Not an Economically Accepted Way to Evaluate Worker Compensation

15. Labor economists do not use labor share as a way to evaluate worker compensation or to benchmark competition in competitive labor markets. Labor economists start from the basic principle that, in a competitive labor market, a firm will be willing to pay a worker up to the "marginal product" of that worker's labor. That is, the firm is willing to pay the worker the additional value that the employee creates.

16. Consider a common and simple example – a salesperson. A company will often pay a salesperson a share of his or her sales (a sales commission). The more the employee sells (that is, the higher his or her marginal product), the more the employee earns. The commission and the salesperson's salary will adjust for the costs of the product sold, the fixed costs (such as benefits and administrative costs), and other costs of employing the salesperson. The salesperson's pay is related to *his or her productivity* – his or her marginal product. It is not related to or based on the *firm's* overall revenues.

17. It is not as easy to see or estimate the marginal product of labor for most employees as it is for salespeople, but the same basic principle applies. Firms offer salaries and other compensation and they adjust them over time as the employee gains skills, proves more or less valuable than expected, and as other employers make offers. The determination of a worker's pay is driven by his or her output, not by his or her output relative to the size of the firm. Consequently, the level of the individual's pay, rather than pay as a share of firm revenues, is the relevant benchmark and is a natural proxy of the worker's marginal product of labor.

18. If the labor market is not competitive, as is alleged in this case, then earnings will not reflect a worker's marginal product of labor. That is, in a "monopsonistic" labor market where a firm has market power over its workers, the firm will pay its workers less than their marginal product of labor. However, the proper benchmark remains the marginal product of labor in a "but for" world where the firm has no monopsonistic power. As a result, economists will analyze the *level* of pay across workers with and without monopsony power and attribute differences in the level of pay to the difference in the ability of a monopsonistic and a competitive firm to withhold some of a worker's marginal product.

CONFIDENTIAL UNDER PROTECTIVE ORDER

19. The empirical analysis of pay done by labor economists has, for a long time, taken a certain form based on the level of earnings. Specifically, when labor economists study the determination of compensation in labor markets, in specific industries, and within individual firms, they typically run a “Mincer Regression.”³ In these wage regressions, the dependent variable is the natural logarithm (“log”) of a worker’s compensation over some specific period of time such as a year, a week, or an hour. In rare cases, (similar to the context Dr. Singer studies) the dependent variable in a Mincer Regression will be log pay in a single event. A common variant of the basic Mincer Regression is to use the change in the natural log of compensation.

20. In my experience, virtually any research-related analysis of compensation done by qualified labor economists is focused around Mincer Regressions or some slight variant on them. A typical issue of a labor economics journal will have several papers that use Mincer Regressions as the core of the analysis.

21. Mincer regressions are the core tool of analysis of labor markets generally. But, of more relevance in this case, they are also the primary tool used in academic studies of “monopsony” and, more generally, of employers’ exertion of market power to lower employee compensation.

22. The economic literature on this is robust. Alan Manning, a labor economist at the London School of Economics, has written extensively on monopsony. In addition to his own research, he has written two detailed reviews of the literature on monopsony and employer labor market power. His 2003 book, *Monopsony in Motion*, reviews the underlying economics of monopsony and employer power and the academic literature in this area. In this book, Manning has numerous tables showing empirical results of research in this area conducted by himself or by other labor economics scholars. At least seven tables in this book present empirical analysis trying to determine if there is monopsony power in some labor market using log of wages (hourly, weekly, etc. and sometimes the change in log of wages from one period to another) as the dependent variable. However, there are *no* regressions or tables in the book that use labor share of revenue or labor share of any employer output measure as any part of the empirical analysis. In fact, there is no use of the term “labor share” (or any related term) in the entire book.

23. Manning also wrote a chapter in the *Handbook of Labor Economics* in 2011. This volume is a primary source for surveys of labor economic topics written by a panel of labor economists who are considered leaders in the field and experts on a particular topic. Manning reviewed a large number of relevant empirical studies. Those that study how monopsony power affects wages all use Mincer regressions where the dependent variable is the log of earnings or the change in the log of earnings.

24. Several of the studies that Manning reviews in his handbook chapter relate to nurses. Nursing is a profession that has long been suspected of having powerful

³ The name is based on the seminal work in this literature – Jacob Mincer 1974, *Schooling, Experience and Earnings*, Columbia University Press: New York.

CONFIDENTIAL UNDER PROTECTIVE ORDER

employers that can use this power to control wages, as Dr. Singer noted in his deposition. The academic studies of this profession all use the log of wages as the primary dependent variable when measuring the degree of monopsony. They look at the level of wages in areas where they suspect nurse employers have monopsony power. They compare these nurses' wages to benchmark workers that are either nurses in areas where employers do not have monopsony power or workers in industries and occupations where the labor market is considered more competitive. In both benchmark cases, pay is likely to be reflective of the worker's marginal product but there is no reason to think that these benchmark workers' pay as a share of their firm's revenues provides a meaningful comparison nor that it is a reasonable proxy for the workers' marginal products.

25. For example, economists Barry Hirsh and Edward Schumacher published two studies of monopsony power in nursing. In the first, they did "standard log wage equation"⁴ regressions where the dependent variable is log of hourly wage. They then look for monopsony power by comparing log wages of nurses to log wages of other workers by area. In the later paper, they do more analyses, all of which focus on log of wage and how it relates to concentration of the nurse market.⁵

26. Manning also cites an influential study by Suresh Naidu that looks at laws in the post-bellum South that discouraged white employers from hiring black workers.⁶ Naidu measures the effects of these laws using regressions where the dependent variable is the log of the average wage for the relevant workers by state by year (the finest level of detail available). Manning also mentions a study by Morris Kleiner and Won Park that looks at the pay of dental hygienists and how it relates to rules regarding dentists' ability to control them. They use the log of the hourly earnings of employees as the dependent variable in their analysis.⁷

27. In an earlier review of monopsony, William Boal and Michael Ransom discuss numerous papers. They highlight one study of teachers, noting "Beck's (1993) dissertation is the most comprehensive of the studies of monopsony in the school-teacher market. He analyzes pooled data from all 541 school districts in Missouri for several years between 1982 and 1990. He defines the market for each district to include all

⁴ Barry T. Hirsch and Edward J. Schumacher, 1995, "Monopsony Power and Relative Wages in the Labor Market for Nurses," *Journal of Health Economics*, 14, at 455.

⁵ Barry T. Hirsch and Edward J. Schumacher, 2005, "Classic or New Monopsony? Searching for Evidence in Nursing Labor Markets," *Journal of Health Economics*, 24, 969-989.

⁶ Suresh Naidu, 2010, "Recruitment Restrictions and Labor Markets: Evidence from the Post-Bellum US South", *Journal of Labor Economics*, 28, 413-445.

⁷ Morris Kleiner and Kyoung Won Park, 2010, Battles Among Licensed Occupations: Analyzing Government Regulations on Labor Market Outcomes for Dentists and Hygienists, NBER Working Paper #16,560.

CONFIDENTIAL UNDER PROTECTIVE ORDER

districts located within a 25 mile radius. As a dependent variable, he uses the logarithm of the average teacher's salary in a district..."⁸

B. Dr. Singer's Statements About the Use of Labor Share in Labor Economics Are Wrong

28. There is no literature of which I am aware in the academic community that accepts use of labor share as a proper basis for measuring how monopsony power affects compensation. In fact, there is virtually no literature that uses labor share when studying the effect of *any* variable that might affect a worker's marginal product or pay.

29. When asked at deposition if he could cite specific academic or peer-reviewed studies that analyze wage share in general and for purposes of estimating damages in antitrust cases, Dr. Singer responded, "I think that the concept of -- of labor's share of his or her marginal revenue product is the foundation of labor economics. It's going to be something that is widely researched and studied in the abstract and in particular industries."⁹ He later elaborated, "the wage share of marginal revenue product is the way that you understand competition in competitive labor markets and how you understand the opposite."¹⁰

30. In fact, the labor share as Dr. Singer measures it is not the foundation of labor economics, it is not widely researched by labor economists, and it has not been widely studied in particular industries by labor economists. When benchmarking competition in competitive labor markets, labor economists do *not* study the share of revenues that accrue to labor. Labor share is not generally accepted in the field of labor economics as a method for determining compensation in a competitive labor market and the validity and reliability of such a method for evaluating an anticompetitive effect has not been tested within the field.

31. Dr. Singer's confusion here could be due to the fact that there is a large literature among macroeconomists that studies labor's share of the economy. Typically, this involves looking at wages as a fraction of Gross Domestic Product, some other macroeconomic measure of the size or the health of the economy, or a measure of the size of an entire sector of the economy. These studies do not equate labor's share to the market power employers hold over labor.

32. For example, macroeconomists Loukas Karabarbounis and Brent Neiman recently published a widely read and cited study in which they analyze long-term global trends in the labor share of the economy as a whole and of very broadly defined industries (such as mining and construction).¹¹ They never mention issues related to

⁸ William M. Boal and Michael R. Ransom, 1997, "Monopsony in the Labor Market," *Journal of Economic Literature*, 35, at 103-104.

⁹ Deposition of Hal J. Singer ("Singer Tr.") at 112:10-16.

¹⁰ *Id.* at 114:14-18.

¹¹ Loukas Karabarbounis and Brent Neiman, 2014, "The Global Decline of the Labor Share," *The Quarterly Journal of Economics*, 129, 61-103.

CONFIDENTIAL UNDER PROTECTIVE ORDER

districts located within a 25 mile radius. As a dependent variable, he uses the logarithm of the average teacher's salary in a district..."⁸

B. Dr. Singer's Statements About the Use of Labor Share in Labor Economics Are Wrong

28. There is no literature of which I am aware in the academic community that accepts use of labor share as a proper basis for measuring how monopsony power affects compensation. In fact, there is virtually no literature that uses labor share when studying the effect of *any* variable that might affect a worker's marginal product or pay.

29. When asked at deposition if he could cite specific academic or peer-reviewed studies that analyze wage share in general and for purposes of estimating damages in antitrust cases, Dr. Singer responded, "I think that the concept of -- of labor's share of his or her marginal revenue product is the foundation of labor economics. It's going to be something that is widely researched and studied in the abstract and in particular industries."⁹ He later elaborated, "the wage share of marginal revenue product is the way that you understand competition in competitive labor markets and how you understand the opposite."¹⁰

30. In fact, the labor share as Dr. Singer measures it is not the foundation of labor economics, it is not widely researched by labor economists, and it has not been widely studied in particular industries by labor economists. When benchmarking competition in competitive labor markets, labor economists do *not* study the share of revenues that accrue to labor. Labor share is not generally accepted in the field of labor economics as a method for determining compensation in a competitive labor market and the validity and reliability of such a method for evaluating an anticompetitive effect has not been tested within the field.

31. Dr. Singer's confusion here could be due to the fact that there is a large literature among macroeconomists that studies labor's share of the economy. Typically, this involves looking at wages as a fraction of Gross Domestic Product, some other macroeconomic measure of the size or the health of the economy, or a measure of the size of an entire sector of the economy. These studies do not equate labor's share to the market power employers hold over labor.

32. For example, macroeconomists Loukas Karabarbounis and Brent Neiman recently published a widely read and cited study in which they analyze long-term global trends in the labor share of the economy as a whole and of very broadly defined industries (such as mining and construction).¹¹ They never mention issues related to

⁸ William M. Boal and Michael R. Ransom, 1997, "Monopsony in the Labor Market," *Journal of Economic Literature*, 35, at 103-104.

⁹ Deposition of Hal J. Singer ("Singer Tr.") at 112:10-16.

¹⁰ *Id.* at 114:14-18.

¹¹ Loukas Karabarbounis and Brent Neiman, 2014, "The Global Decline of the Labor Share," *The Quarterly Journal of Economics*, 129, 61-103.

CONFIDENTIAL UNDER PROTECTIVE ORDER

55. There are other issues with Professor Zimbalist's report that further call into question any conclusions he reaches. For example, in Tables 4 and 5 on page 81 of his report, Professor Zimbalist shows two trends related to fighter earnings over time. First, note that both Dr. Singer and Professor Zimbalist argue throughout their reports that Zuffa's foreclosure was going up over time.²⁹ But Tables 4 and 5 show that fighter's share of revenue was going up over the years suggesting that Zuffa's foreclosure of the fighter market does not lead to lower fighter share.

56. Professor Zimbalist goes on to compare earnings of MMA fighters to athletes that compete in boxing, baseball, football, hockey, and basketball. Even if I accepted that share of revenues was somehow a relevant measure within MMA (and, as I have described at length, I do not accept that), there is absolutely no reason to think the athlete's share of revenue should be compared to other sports or would be comparable across sports, particularly those that have been established for many years. Nascent businesses often face different cost and revenue structures that would affect any comparison of a worker's percentage of revenue share in comparison to established businesses. Professor Zimbalist does not explain why a comparison limited to sports or across sports is appropriate at all nor why he limits his comparisons to large, established sports. It might be more appropriate to compare MMA to up-and-coming sports like the X-Games, though that comparison would not justify claims of damages to Zuffa athletes given that news reports suggest X-Games athletes earn just a few percent of the revenue the event brings in.³⁰

57. Another important factor that could affect the share of revenues captured by athletes is the substitutability of marginal athletes for top athletes. Suppose that there is enough demand for 1,000 bouts in a year and that 225 fighters participate (which is similar to the year 2014 which was the peak number of UFC bouts). If there are 500 fighters that are all fairly close in skill and who fans would be equally interested in watching, then the marginal product of a UFC fighter (at least those that are not big stars) would be quite low because each fighter could be easily replaced with little lost value. Thus, to really compare across sports as Professor Zimbalist does, one would have to know the distribution of talent relative to fan demand and willingness-to-pay. Without that information, it makes no sense to compare labor share across sports under the assumption that the share should be the same.

58. Another factor that can explain the difference across sports in the share paid to athletes is simply the scale of revenues. As a much smaller revenue sport, MMA may be subject to much higher administrative costs as a percentage of revenue. All the sports that Professor Zimbalist uses as comparisons to MMA are on the order of ten or more times as large in terms of dollar revenue. UFC revenues, according to Professor Zimbalist, were \$666 Million in 2016 while the NFL's revenue was over \$13 *Billion*.³¹ It is hard to compare boxing to MMA given that a recent boxing fight (Mayweather vs.

²⁹ See, for example, Figure 1 of Singer Report at 88.

³⁰ Monte Burke, 2004, "X-treme Economics", Forbes.com.

³¹ Jason Belzer, 2016, "Thanks To Roger Goodell, NFL Revenues Projected to Surpass \$13 Billion In 2016", Forbes.com.